

### REMARKS

Claims 1-4, 6-12, 14-19, 21-25, 27-32, 34-39 and 41-53 are pending in the present Application. No additional amendments to the claims have been made in this response. Reconsideration and allowance of the claims are respectfully requested in view of the following remarks.

#### Information Disclosure Statement

Applicants note that the Examiner has not considered the art submitted in the Information Disclosure Statement filed on August 10, 2004. Applicants respectfully request that the art submitted in this Information Disclosure Statement be considered and a fully initialed PTO Form A820 be returned to the Applicants.

#### Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-4, 7-12, 13, 15-16, 30-32, 34-35, 37-39, 42-47 and 49-53 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over United States Patent No. 4,927,859 to Weber, et al. (Weber) in view of United States Patent No. 4,350,793 to Schmidt, et al. (Schmidt). Applicants respectfully traverse this rejection.

Weber discloses expandable polymers in particle form. The expandable polymers comprise a styrene polymer, a polyphenylene ether and a blowing agent mixture (Abstract). The blowing agent mixture comprises a blowing agent having an insignificant plasticizing effect and a blowing agent having an important plasticizing effect (Col. 2, line 67 to Col. 3, line 2). The plasticizing blowing agent reduces the softening point of the mixture of polystyrene and polyphenylene ether (Col. 3, lines 27-41). The composition may optionally comprise a flameproofing agent and suitable flameproofing agents include triphenylphosphine oxide (Col. 3, lines 42-49). The expandable polymers are prepared by impregnating particles in an aqueous suspension with the blowing agent mixture at elevated temperatures and under superatmospheric pressure (Col. 3, lines 59-63).

Schmidt discloses a flame retardant composition comprising an admixture of polyphenylene ether and polystyrene and a thermoplastic aromatic polyphosphonate. (Abstract) By using the thermoplastic aromatic polyphosphonate Schmidt seeks to produce a

polymer blend which has a higher heat distortion point that is higher than a comparable blend which uses a different flame retardant such as a triaryl phosphate. (Col. 1, lines 35-44)

Schmidt describes the thermoplastic aromatic polyphosphonate in great detail and the polyphenylene ether and polystyrene in somewhat less detail. However, Schmidt does disclose that the polystyrene may have a weight average molecular weight between 100,000 and  $10^6$ . (Col. 6, lines 8-9) Schmidt goes on to say that the composition may further comprise conventional additives such as reinforcing agents, pigments and stabilizers (Col. 6, lines 58-62) but does not teach or suggest blowing agents. Schmidt goes on to describe flame retardancy in terms of UL94 VO, VI and VII ratings which apply only to non-foamed materials. (Col. 8, lines 5-43) Schmidt indicates that the flame retardant composition is intended for injection molding. (Col. 8, lines 44-53) Schmidt does not teach or suggest any other type of processing or forming methods for the flame retardant thermoplastic composition.

In responding to arguments presented in the last amendment the Examiner has stated:

The Weber reference is silent to the molecular weight of PS. The fact that the reference does not disclose one of the properties of the PS suitable for the invention clearly implies that this characteristic is not critical to the invention and various known materials may be used in this invention. The secondary reference, Schmidt, was merely cited to support the fact that the PS of the claimed molecular weight are known in the art and commercially available....Thus choosing PS with ANY known molecular weight, such as those claimed by the applicants for the invention disclosed in Weber would have been obvious with reasonable expectation that, since Mn of the base polymer is not critical, PS of any known Mn would produce adequate results.

*(Office Action, 10/12/06, pages 4 and 5)*

As understood by one of ordinary skill in the art the concerns regarding injection molding materials and foamed materials is different. Melt flow of a composition is an important consideration in injection molding materials, as taught in Schmidt, because the melted material must flow to fill the part mold although melt flow can vary widely among injection molding materials depending on their intended use. Compositions intended for use with smaller and/or less complex parts can have a lower melt flow as it is easier to fill a smaller and/or less complex mold. It has long been known to use lower molecular weight polystyrene

as a melt flow modifier in polyphenylene ether compositions for injection molding. In contrast, it has commonly been agreed in the prior art that melt flow is of less concern in foamed materials and typically distribution of the blowing agent and other factors associated with foaming such as those taught by Weber are of concern. More specifically, in expandable particulate materials melt flow has been held to have little or no relevance in processing because the expandable particulate materials expand to fill a mold and have little or no need to flow.

Given the knowledge available in the art and the differing intents of Weber and Schmidt Applicants assert that there is no motivation to insert the molecular weights of Schmidt into the composition of Weber. Furthermore, even if the molecular weights taught by Schmidt were included in Weber the range taught by Schmidt is so broad as to provide insufficient guidance to choose a polystyrene having a molecular weight less than or equal to about 240,000 atomic mass units as is instantly claimed. As taught in the specification in paragraph [0032]

“it is believed that use of a low molecular weight polystyrene allows the use of a lower melt temperature during the introduction of the blowing agent thus improving blowing agent retention in the blend.”

Applicants respectfully remind the Examiner that in applying Section 103, the U.S. Court of Appeals for the Federal Circuit has consistently held that one must consider both the invention and the prior art “as a whole”, not from improper hindsight gained from consideration of the claimed invention. See, *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985) and cases cited therein. According to the *Interconnect* court

[n]ot only must the claimed invention as a whole be evaluated, but so also must the references as a whole, so that their teachings are applied in the context of their significance to a technician at the time - a technician without our knowledge of the solution.

*Id.* Also critical to this Section 103 analysis is that understanding of “particular results” achieved by the invention. *Id.*

When, as here, the Section 103 rejection was based on a selective combination of portions of the prior art references to allegedly render a subsequent invention obvious, “there must be some reason for the combination other than the hind sight gleaned from the invention itself.” *Id.* Stated in another way, “[i]t is impermissible to use the claimed invention as an instruction manual or ‘template’ to piece together the teachings of the prior art so that the claimed invention is rendered obvious.” *In re Fritch* 23 U.S.P.Q.2d 1780, 1784 (Fed. Cir. 1992).

In summary, Applicants argue that there is insufficient motivation to combine the references and even if the references are combined there is insufficient teaching to select the polystyrene molecular weight as instantly claimed.

Claims 6, 14, 17-19, 21-25, 27-29, 36, and 41 stand rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over United States Patent No. 4,927,859 to Weber, et al. (Weber) in combination with United States Patent No. 4,350,793 to Schmidt, et al. (Schmidt) and further in view of Allen.

Applicants respectfully traverse this rejection. The combination of Weber and Schmidt has been discussed above. Allen does not provide motivation for the incorporation of the polystyrene of Schmidt into the composition of Weber nor does Allen provide sufficient motivation for the selection of the claimed polystyrene molecular weight. Applicants respectfully request withdrawal of this rejection.

Claims 1-4, 7-12, 15-16, 30-32, 34, 35, 37-39, 42-47 and 49-53 stand rejected under 35 U.S.C. § 103(a), as allegedly obvious over United States Patent No. 4,927,859 to Weber, et al. (Weber) in combination with United States Patent No. 4,350,793 to Schmidt, et al. (Schmidt) and further in combination with United States Patent No. 5,000,891 to Green, et al. (Green).

Applicants respectfully traverse this rejection. The combination of Weber and Schmidt is discussed above. Green is directed to methods of preparing expandable polystyrene pellets and does not provide any incentive to use the polystyrene of Schmidt in the composition of Weber.

Claims 6, 14, 17-19, 20-25, 27-29, 36 and 41 stand rejected under 35 U.S.C. § 103(a), as allegedly obvious over United States Patent No. 4,927,859 to Weber, et al. (Weber) in combination with United States Patent No. 4,350,793 to Schmidt. et al. (Schmidt) and Allen and further in combination with United States Patent No. 5,000,891 to Green, et al. (Green).

Applicants respectfully traverse this rejection. Neither Allen nor Green rectifies the deficiencies of Weber and Schmidt. A *prima facie* case of obviousness has not been made.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 50-1131.

Respectfully submitted,

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